

CLAIMS

1. Gear drive unit (10) with an electric drive motor (12) featuring an armature shaft (16) and at least one housing part (14, 18) accommodating the armature shaft (16) and an electronic interface (36) to accommodate various plug-in modules (34, 82, 94, 110), which can be inserted into the electronic interface (36) in the insertion direction (55), characterized in that the electronic interface (36) features walls (38) that are spaced apart from each other, which walls form an opening (42) perpendicular to the armature shaft (16) and an opening (44) axial to the armature shaft, wherein at least one first sealing surface (50) and guides (64) are arranged on the walls (38) along the insertion direction (55) to seal various plug-in modules (34, 82, 94, 110) vis-à-vis the at least one housing part (14, 18).
2. Gear drive unit (10) according to Claim 1, characterized in that the electronic interface (36) features at least a second sealing surface (48) to seal various plug-in modules (34, 82, 94, 110), wherein the at least two sealing surfaces (48, 50) are arranged offset at least partially with respect to the insertion direction (55).
3. Gear drive unit (10) according to one of Claims 1 or 2, characterized in that at least the first sealing surface (50) seals the plug-in modules (34, 82, 94, 110) at least to some extent radially to the insertion direction (55).
4. Gear drive unit (10) according to one of the preceding claims, characterized in that at least one housing part (18) features a recess (46) in the area of the electronic interface (36), into which a printed circuit board (32) of the plug-in module (34, 82, 94, 110) can be inserted tangentially or radially to the armature shaft (16).
5. Gear drive unit (10) according to one of the preceding claims, characterized in that the second sealing surface (48) is arranged essentially along the edge of the recess (46).
6. Gear drive unit (10) according to one of the preceding claims, characterized in that the first sealing surface (50) is arranged essentially along the edge of the openings (42, 44).

7. Gear drive unit (10) according to one of the preceding claims, characterized in that the guides (64) are arranged for pressing one of the seals (88, 60) that is arranged on the plug-in module (34, 94, 110) against the sealing surfaces (50) and/or for mechanically holding on the edge of the axial opening (44).
8. Gear drive unit (10) according to one of the preceding claims, characterized in that the walls (38) of the electronic interface (36) is arranged conically in the insertion direction (55).
9. Gear drive unit (10) according to one of the preceding claims, characterized in that locking means (68, 70) are arranged on the electronic interface (36) to lock with counter locking means (74, 72) on the plug-in module (34, 82, 94, 110).
10. Gear drive unit (10) according to one of the preceding claims, characterized in that the gear drive unit (10) features a brush holder (62), on which an optional, particularly two-pin, plug (80) is arranged for electric contacting, which projects from the at least one housing part (14, 18) in the area of the electronic interface (36), which housing part is designed to be sealed in the area of the electronic interface (36).
11. Gear drive unit (10) according to one of the preceding claims, characterized in that at the first sealing surface (50, 58) is arranged in such a way that it does not collide with the optional plug (80) that is formed on the brush holder and projects from the housing part (14, 18).
12. Plug-in module (34, 82, 94, 110) for use with a gear drive unit (10) according to one of the preceding claims, characterized in that the plug-in module (34, 82, 94, 110) features a seal (88, 60), made of a thermoplastic elastomer in particular, which can cooperate with the first, second or additional sealing surfaces (48, 50) in such a way that at least one housing part (14, 18) is sealed in a watertight manner.
13. Plug-in module (34, 110) according to Claim 12, characterized by an electronic plug (84), whose plugging direction runs essentially radial to the armature shaft (16).

14. Plug-in module (34, 82, 94) according to one of Claims 12 or 13, characterized by an electronic plug (84), whose plugging direction runs essentially axial to the armature shaft (16).
15. Plug-in module (34, 110) according to one of Claims 12 through 14, characterized by a jacket-like housing (111), which can cooperate with the one seal (88) with the second sealing surface (48) of the gear drive unit (10) and can be sealed with another seal (114) vis-à-vis a cover (116) of the plug-in module (34, 110) that features a plug (84).
16. Plug-in module (34, 82, 94, 110) according to one of Claims 12 through 15, characterized by a printed circuit board (32), on whose side facing the armature shaft (16) at least parts of a speed detection device (30), in particular a Hall sensor system (30), are arranged.
17. Plug-in module (34, 82, 94, 110) according to one of Claims 12 through 16, characterized by two outside walls (96, 97) arranged at an angle to one another, which close the openings (42, 44) of the electronic interface (36) and are connected to one another by means of a frame element (98) in such a way that both the printed circuit board (32) and the connections (100) of the electronic plug (84) are freely accessible for their assembly.
18. System to electrically adjust parts in a motor vehicle that are arranged to be moveable, in particular window panes, in which a gear drive unit (10) according to one of the Claims 1 through 11 is alternatively combined with a plug-in module (34, 82, 94, 110) according to one of Claims 12 through 17.